





ON

A P H A S I A,

OR

LOSS OF SPEECH IN CEREBRAL DISEASE.

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APHASIA is the term which has recently been given to the loss of the faculty of articulate language, the organs of phonation and of articulation, as well as the intelligence, being unimpaired. The pathology of this affection is at the present time the subject of much discussion in the scientific world; the French Academy devoted several of their *séances* during the year 1865 to its special elucidation, and the Medical Journals of France and of our own country have lately contained a good deal of original matter bearing upon this obscure feature in cerebral pathology.

In a short paper published in the 'Lancet' for May 20, 1865, I drew attention to the existing state of our knowledge of the pathology of aphasia; since that period I have had occasion to make researches among various British and foreign authors, and having noticed a certain number of curious observations bearing upon this interesting subject, I have thought it not a useless task in this short essay to give a *résumé* of the labours of scientific observers in various parts of the world, who are endeavouring to elucidate this complex question, adding thereunto the result of my own personal experience, the clinical history of my own cases being given with a considerable amount of detail.

From time immemorial loss of speech, unconnected with any other paralytic symptom, must have been noticed; but it is only of late that the diagnostic value of this symptom has been recognised, and its pathology attempted to be explained; and it is probable that early observers may have confounded paralysis of the tongue from disease of the hypoglossus, with that loss of the memory of words, and inability to give expression to the thoughts which characterise aphasia.

It has been stated that Hippocrates confounded aphasia with aphonia; I am inclined, however, to think that the reputation of the Father of Medicine has suffered from the fault of his English translator, for in his ‘*Epidemics** he describes a disease characterised by *sore throat and hoarseness of voice*, using the phrase “πολλοὶ φάρνγγας ἐπόνησαν φωνὰ κακούμεναι,” the last two words of which have been erroneously rendered in English “*loss of speech!*” In another place Hippocrates clearly distinguishes between loss of speech and loss of voice, by employing the words “ἀναυδος” and “ἀφωνος” in the description of the same case.

The following passage from Sauvages shows that the distinction was clearly understood by him: “*Aphonia est plenaria vocis suppressio. Mutitas (quibusdam alalia) est impotentia voces articulatas edendi, seu sermonem proferendi.*”

As this subject has more particularly engaged the attention of French pathologists during the last few years, it is most convenient to consider first their researches.

The minute anatomy of the surface of the brain not being to my knowledge described in any English author with the same amount of detail as occurs in M. Broca’s description, I have condensed the following account from his work, “*Sur le Siége de la Faculté du Langage Articulé.*”

The anterior lobe of the brain comprises all that part of the hemisphere situated above the fissure of Sylvius (which separates it from the temporo-sphenoidal lobe), and in front of the furrow of Rolando, which divides it from the parietal lobe. The furrow of Rolando separates the frontal from the parietal lobe; it traverses from above downwards all the external surface of the cerebral hemisphere, starting from the inter-hemispheric median fissure, and ending at the fissure of Sylvius; in front this furrow is bounded by the transverse frontal convolution, and behind by the transverse parietal convolution. The anterior lobe is composed of two storys or divisions, one inferior or orbital, the other superior, situated beneath the frontal and under the most anterior part of the parietal. This superior division of the anterior lobe is composed of four fundamental convolutions, one posterior, the others anterior. The posterior is that which has been described as the *transverse frontal*, and which forms the anterior border of the furrow of Rolando; the three other convolutions have all an antero-posterior direction, and are distinguished by the names of *superior or first frontal, middle or second, and inferior or third, frontal convolutions*. This last by its posterior half forms the superior border of the fissure of Sylvius, the

* ‘*Hippoc. de Memb. Pop.*’ lib. iii, sec. ii, p. 80, edit. Innys.

inferior border being formed by the superior convolution of the temporo-sphenoidal lobe. In drawing asunder these two convolutions which bound the fissure of Sylvius the lobe of the insula is exposed, which covers the extraventricular nucleus of the corpus striatum. The result of these relations is that a lesion which is propagated from the frontal to the temporo-sphenoidal lobe, or *vice versa*, will pass almost necessarily by the lobe of the insula, and from thence, in all probability, it will extend to the extraventricular nucleus of the corpus striatum, seeing that the proper substance of the insula which separates the nucleus from the surface of the brain is composed of only a very thin layer.

As far back as 1825 Bouilland placed the faculty of articulation in the frontal lobes of the brain, which he considered to be the organs of the formation of words and of memory; and he stated that the exercise of thought demanded the integrity of these lobes; he also collected 114 observations of disease of the anterior lobes accompanied by lesion of the faculty of speech.

Audral, who has investigated the subject very fully, analysed 37 cases, observed by himself and others, of lesion of one or both of the anterior lobes, and found that speech was abolished 21 times, and retained 16 times; when the lesion was unilateral, however, he has not stated on which side the morbid condition existed. He has also collected 14 cases where speech was abolished without any alteration in the anterior lobes, but where the lesion existed in the middle or in the posterior lobes. He cites the case of a woman, eighty years of age, who, three years before entering the hospital, was suddenly deprived of speech, without lesion of the intelligence, motion, or sensation, and retaining the power of walking about; she presented, however, signs of organic disease of the heart, and died at last of pulmonary apoplexy. At the necropsy there was found in the left hemisphere softening of cerebral substance on a level with, and external to, the posterior extremity of the corpus striatum; and in the right hemisphere, a similar softening at the junction of the anterior and posterior half of the hemisphere.*

Then comes Dr. Dax, who places the lesion exclusively in the *left* hemisphere; basing his theory on the fact that when the subjects of aphasia are at the same time hemiplegic, the paralysis is always on the *right* side, his essay containing no less than 140 observations in support of his views.

His son, Dr. G. Dax, following in the wake of his father, wrote an essay, in which, whilst confirming the theory as to the lesion being in the left hemisphere, he localised it more especially in the anterior and external part of the middle lobe.

* 'Clinique Médicale,' chap. iv, observ. xvii.

The *ne plus ultra* of pathologeal topography, however, was reserved to M. Broca, who defines the seat of lesion in aphasia to be "*the posterior part of the third frontal convolution of the left hemisphere!*" M. Broca's views are detailed at some length in the proceedings of the Paris Anatomical Society for 1861, and the following is a brief summary of the two cases upon which he has founded his somewhat startling theory.

A man named Leborgne, 50 years of age, and epileptic, was admitted into the surgical ward of M. Broca, at Bicêtre, for phlegmonous erysipelas, occupying the whole of the right lower limb. When M. Broca questioned him about the origin of his disorder, he only answered by the monosyllable "Tan," repeated twice, and accompanied by a gesture of the left hand. On making inquiries, it transpired that this man had been an inmate of the hospital in another wing for twenty-one years; that he had been the subject of epilepsy since infancy; that he had followed the occupation of a lastmaker up to the age of thirty, when he lost his speech, but no information could be elicited as to whether the loss of speech had come on suddenly, or had been ushered in by any other symptom. On his admission at Bieêtre he is stated to have been intelligent, understanding all that was said to him, and differing from a perfectly healthy man only in the loss of the faculty of articulate language, for whatever question was put to him, he invariably answered by the monosyllable "Tan," which, with the exception of a coarse oath ("S—n— de D—"), composed his vocabulary. At the end of ten years, a new symptom showed itself in weakness in the motor power of the right arm, which gradually resulted in complete paralysis of the right side, and he had already been bedridden seven years when the occurrence of a surgical complication rendered it necessary to transfer him to the ward of M. Broca, who, in describing his *then* condition, states that there was no distortion of face, the tongue was protruded straight, the movements of that organ being perfectly free in every direction; mastication was unimpaired, but deglutition was effected with some difficulty, this being however due to commeneing paralysis of the pharynx, and not to paralysis of the tongue, for it was only the third period of deglutition which was difficult; the voice was natural, and the funtions of the bladder and reetum unimpaired. The patient having died in six days, a careful post-mortem examination was made, when all the viscera were found healthy, with the exception of the encephalon; the museles of the right upper and lower extremities, however, were in an advanced stage of fatty degeneration and shrivelled up. The bones of the cranium were somewhat increased in density, the dura mater thickened and very vascular, the pia mater considerably injected in certain plaees, and everywhere thickened, opaque, and infiltrated with yellowish plastic matter of the colour of pus, but whieh,

examined under the microscope, did not contain any pus-globules. The greater part of the frontal lobe of the left hemisphere was softened, and the destruction of cerebral substance had resulted in a cavity of the size of a hen's egg and filled with serum; the cavity was situated upon a level with the fissure of Sylvius, and was caused by the destruction of the inferior marginal convolution of the temporo-sphenoidal lobe, the convolutions of the island of Reil, and the subjacent part or extraventricular nucleus of the corpus striatum. In the frontal lobe the inferior part of the *frontal transverse convolution* was destroyed, as also the posterior half of the *second and third frontal convolutions*, the loss of substance being most apparent however in the third frontal convolution. The weight of the encephalon after the evacuation of the fluid filling the cavity did not exceed 987 grammes (35 ounces), being less by 400 grammes (14 ounces) than the average weight of the brain in men of fifty years of age.

M. Broca then compares the result of the autopsy with the clinical observations during life; he considers that the primary seat of mischief was probably in the third frontal convolution, extending gradually to the others, and that this process of disorganisation corresponded to the first stage of the clinical history, which lasted ten years, and during which period the faculty of speech alone was abolished, all the other functions of the body being intact; the second stage, which lasted eleven years, and which was characterised clinically by partial paralysis, and then complete hemiplegia, he connects with the extension of the disease to the island of Reil and to the extraventricular nucleus of the corpus striatum.

A man, aged 84, formerly a navigator, was admitted into the surgical ward at Bicêtre on the 27th October, 1861, for a fracture of the neck of the femur. This man had been received into the hospital eight years before for senile debility, there being at that time no paralysis, and the organs of special sense and the intelligence being unimpaired. In the month of April 1860 whilst descending a staircase he fell, suddenly became unconscious, and was treated for what was considered to be an attack of apoplexy; in a few days he was convalescent there, never having been the least symptom of paralysis of limbs, but since the fit he had suddenly and definitely lost the faculty of speech, being only able to pronounce certain words articulated with difficulty; his intelligence had received no appreciable shock; he understood all that was said to him, and his brief vocabulary, accompanied by an expressive mimic, enabled him to be understood by those who lived habitually with him. He continued in this condition up to the time of the accident which caused him to be transferred to the surgical ward under the care of M. Broca, to whose questions he only answered by signs, accompanied by one or two

syllables pronounced hastily and with visible effort. These syllables had a definite meaning, and consisted of the following French words—"oui, non, *tois* (for *trois*), and *toujours*." He also possessed a fifth word, which he only pronounced when he was asked his name, he then answered "Lelo," for Lelong, which was his proper name. The three first words of his vocabulary corresponded each to a definite idea. When he wished to affirm or approve he said "oui," employing the word "non" to express the opposite idea. The word "*tois*" expressed all his ideas of numbers, but as he was aware it did not correctly convey his thoughts, he rectified the error by gesture: for instance, when asked how long he had been at Bicêtre, he answered *tois*, but raised eight fingers. When asked what was o'clock (it being then ten) he answered *tois*, and raised ten fingers. Whenever the three other words were not applicable, he invariably used the word *toujours*, which consequently for him had no definite meaning. There was no paralysis of the tongue, which was protruded straight, and was moveable in every direction, each half being of the same thickness; sight and hearing were good, deglutition was normal, and there was no paralysis of limbs, nor of the rectum or bladder.

M. Broca sums up the symptoms by calling attention to the following salient points: 1st, that the patient understood all that was said; 2nd, that he applied with discretion the four words of his vocabulary; 3rd, that his intelligence was unimpaired; 4th, that he understood numbers; 5th, that he had neither lost the general faculty of language nor the movement of the muscles concerned in phonation and articulation; and that therefore he had only lost the faculty of articulate language. The patient died in twelve days. Autopsy.—The bones of the cranium were somewhat thickened, and all the sutures ossified; the dura mater was healthy; the arachnoid cavity contained a considerable quantity of serum; the pia mater was neither thickened nor congested. The encephalon weighed, with its membranes, 1136 grammes (40 ounces), being far below the average weight of that of adult males. The right hemisphere, the cerebellum, the pons varolii, and the medulla oblongata, were in a perfectly normal condition. In the left hemisphere the lesion was limited to a loss of substance in the *posterior third of the second and third frontal convolutions*, a small cavity having been thus formed which was filled with serum. The walls of the cavity and the neighbouring cerebral tissue were firmer than usual; there were present some little spots of an orange-yellow colour, apparently of an haemetic origin, and microscopic examination revealed the presence of blood crystals. The lesion then was clearly not softening, but the seat of a former apoplectic clot; and it will be remembered that the patient suddenly lost his speech in an attack of apoplexy eighteen months before his death.

In alluding to the above two cases, M. Broca says that in the first case—that of Laborgno—it is only by comparing the different stages of the disease as observed during life with the post mortem appearances, that he assumes the high probability of the lesion having commenced in the third frontal convolution; but in the second case—that of Lelong—there being no other symptom than loss of speech, and the lesion being strictly limited to the second and third frontal convolutions, he considers the aphasia was incontestably due to disease of that portion of the nervous centres. Whilst admitting that two cases are insufficient to resolve one of the most obscure and disputed questions in cerebral pathology, M. Broca considers himself justified in asserting that the integrity of the *third frontal convolution* (and perhaps of the second) appears indispensable to the exercise of the faculty of articulate language.*

A later writer of the French School, Dr. J. Falret, has collected from various authors no less than sixty-two cases, in the arrangement of which he adopts the following classification: 1st, all those cases in which the patients, whilst retaining intelligence and integrity of the organs of phonation, can only remember or articulate spontaneously certain words or classes of words, or even certain syllables or letters, but who can repeat and write any word that may be suggested to them by others. 2nd. Those who are only able to pronounce spontaneously certain words, syllables, or phrases always the same, not being able to repeat other words dictated to them, and who yet retain the power of writing, or even of reading. 3rd. Those more rare cases in which the patients can only pronounce certain words always the same, which, aided by gesture, enable them to express their thoughts, the power of reading, writing, and repeating words dictated being abolished. Dr. Falret admits that this classification is artificial, and probably does not embrace all the varieties met with in practice.†

Professor Troussau has made this subject a prominent feature in his clinical lectures, where he details several most interesting cases in which, when hemiplegia existed, it was with one exception always on the right side.‡

During several months of the session of 1865, the French Academy of Medicine became the arena for discussion upon this most interesting subject, in which many of the leading physicians and surgeons took a part. At one of these meetings M. Troussau gave the result of his statistical researches, and stated that in 134 observations collected by himself, 124 were confirmatory of M. Dax's proposition of localizing the faculty of speech in the left hemisphere, and 10 were contrary. With regard to M. Broca's theory of

* 'Sur le Siège de la Faculté du Langage Articulé,' p. 39.

† 'Des Troubles du Langage,' p. 5.

‡ 'Clinique Médicale,' tom. ii, p. 571.

attributing aphasia to a lesion of the third frontal convolution, he found that 14 cases were in favour of it, and 18 opposed to it; amongst the latter he mentioned the case of a woman treated at La Salpêtrière by M. Chareot for right hemiplegia with aphasia, and where after death there was found a lesion of the left insula, and also of the third frontal convolution of the *right* side.

M. Troussseau also cited a case observed by M. Peter, the subject of which was a woman who had left hemiplegia, and who could only say, "*Oui, parbleu!*" who died from the effects of senile gangrene, and at whose autopsy a lesion was found of the third frontal convolution of the *right* side, also of the insula and of the posterior part of the corpus striatum, there being also embolism of the middle cerebral artery. Here, says M. Troussseau, are two cases of aphasia, with a lesion on the *right* side.

At another of these discussions M. Velpeau alluded to the fact of M. Bouillard having offered many years since a prize of 500 francs for any well authenticated case in which the two anterior lobes were destroyed, or more or less seriously injured, without speech being affected, saying that he (M. Velpeau) should claim the prize on the faith of the following case, with specimen, which he presented to the Academy twenty-two years ago. In the month of March, 1843, a wigmaker, sixty years of age, came under M. Velpeau's care for a disease of the urinary passages. With the exception of his prostatic disease, he seemed to be in excellent health, was very lively, cheerful, full of repartee, and evidently in possession of all his faculties; one remarkable symptom in his case being his *intolerable loquacity*. A greater chatterer never existed; and on more than one occasion complaints were made by the other patients of their talkative neighbour, who allowed them rest neither night nor day. A few days after admission this man died suddenly, and a careful autopsy was made, with the following results:—Hypertrophy of the prostate, with disease of the bladder. On opening the cranium a scirrhouous tumour was found, which had taken the place of the two anterior lobes! Here then was a man who up to the time of his death presented no symptom whatever of cerebral disease, and who, far from having any lesion of the faculty of speech, was unusually loquacious, and who for a long period prior to his decease must have had a most grave disease of the brain, which had destroyed a great part of the anterior lobes. The debate at the Academy of Medicine closed without this learned body having arrived at any definite decision in reference to the localization of the faculty of speech.

Several very interesting observations have been recorded in the French press, most of which are more or less corroborative of Broca's views, or at least of the association of loss of speech with lesion of the *left* hemisphere.

In the 'Gazette des Hôpitaux' for July 1st, 1865, Dr. Lesur mentions a remarkable case of a child, who, in consequence of a fracture of the frontal bone caused by a kick from a horse, was trepanned about one inch and a quarter above the left orbit. The child recovered, but during the progress of the treatment it was observed that pressure on the brain at the exposed part suspended the power of speech, which returned as soon as the pressure was removed.

Another case of traumatic aphasia has recently occurred in the practice of Dr. Castagnon, the subject of it being a young girl, aged 20, who was shot in the head, the accident resulting in a comminuted fracture of the antero-superior portion of the left parietal; although there was no depression of bone, several spiculae were removed, and there was subsequently hernia cerebri and sphæzelus of the protruded portion, which was removed by ligature. There was a comatose condition for six days, dextral paralysis and complete loss of speech for a month, at the end of which time she could speak, her vocabulary, however, being limited to four phrases, "*Mon Dieu! Jesus! mon père, ma père.*" At the expiration of a year the paralysis had subsided, and the patient resumed her occupation, but although the intelligence was as perfect as before the accident, the young girl spoke but very little, and with great difficulty.*

An interesting case was observed a few months since at the Hospital St. Antoine by M. Jacoud, the subject being a man aged 44, suffering from Bright's disease, who, without any premonitory symptom, suddenly became aphasic, there being no other paralytic symptom except a limited facial paralysis. The aphasia was of short duration, and at the end of five weeks he spoke nearly as well as before, but soon sank from disease of the kidneys. At the post-mortem there was observed fatty degeneration of both kidneys; insufficiency of the mitral valve, which was covered with small vegetations; the arteries of the circle of Willis were healthy, and there was no disease of the grey matter of the convolutions, but there was a limited and well-defined softening of the white substance in the immediate neighbourhood of the third frontal convolution of the left anterior lobe, great stress being laid on the fact that the convolution itself was in nowise affected.†

The next three cases I have to mention are instances of the lesion of the third frontal convolution without aphasia, but as the lesion was on the *right* side, they may be adduced as *negative proofs* of the truth of M. Broca's theory.

M. Fernet has recorded a case of left hemiplegia without aphasia in a female aged 36, and at whose autopsy the entire frontal lobe of the *right* hemisphere was broken down by softening. In the 'Gazette

* 'Gazette des Hôpitaux,' Oct. 12, 1867.

† Ibid., May 16, 1867.

Hebdomaire for July, 1863, M. Parrot relates a case of complete atrophy of the island of Reil, and of the third frontal convolution on the *right side*, with preservation of the intelligence and of the faculty of articulate language. M. Charcot has recorded the case of a woman, 77 years of age, who had left hemiplegia without embarrassment of speech, or loss of the memory of words, and at whose autopsy there was found yellow softening of the surface of the *right* frontal lobe, the second and third frontal convolutions being completely destroyed, and there being no lesion of the central parts of the brain.

I need scarcely remark that cases like the three just mentioned, of lesion on the *right side without aphasia* are quite as valuable in a statistical point of view, and tend as much to settle the *quæstio verata*, as cases where the converse condition exists, viz., lesion on the *left side with aphasia*.

I now arrive at a class of cases which have a directly opposite pathological signification to those above mentioned, the six following observations being all calculated to invalidate the recent theories as to the seat of articulate language.

M. Peter relates the case of a man who fractured his skull by a fall from a horse. After recovery from the initial stupor there succeeded a remarkable *loquacity*, although after death it was found that the two frontal lobes of the brain were reduced to a pulp (*réduits en bouillie*).

In Troussseau's 'Clinique Médicale,' the following case is recorded:—In the year 1825, two officers quartered at Tours quarrelled, and satisfied their honour by a duel, as a result of which one of them received a ball which entered at one temple and made its exit at the other. The patient survived six months without any sign of paralysis or of lesion of articulation, nor was there the least hesitation in the expression of his thoughts till the supervention of inflammation of the central substance which occurred shortly before his death, when it was ascertained that the ball had traversed the two frontal lobes at their centre.

M. Charcot, who has collected a number of observations more or less corroborative of M. Broca's assertions, has however recorded the case of a woman, aged 47, who from a fit of apoplexy suddenly became hemiplegic on the right side and aphasic. Her intelligence was unaffected, and memory reported as good, but her articulate language was reduced to the monosyllable "Ta," which she was in the habit of repeating several times over ("Ta, ta, ta, ta"), very rapidly and very distinctly, every time she tried to answer any question or to communicate her own ideas; the tongue was perfectly free, and could be moved in every direction. After death it was found that softening had destroyed the first and second convolutions of the temporo-sphenoidal lobe, the island of Reil, the extra-ventricular nucleus of the corpus striatum, and the

intraventricular nucleus in its posterior half, the optic thalamus being intact; the frontal convolutions presented no alteration either in volume, colour, or consistence, the examination being conducted with the greatest care, and even in the presence of M. Broca, who frankly admitted this case to be at variance with his hypothesis.*

A woman, aged 73, was admitted into the Salpêtrière under M. Vulpian, her only symptom being loss of the power of speech, there was no paralysis of limbs, and M. Vulpian looked upon this patient as a type of aphasia. After a few days she became hemiplegic on the right side, and died of pneumonia five weeks after admission. At the autopsy softening was observed to a considerable extent in the posterior half of the supraventricular white matter of the left hemisphere, there being not the slightest indication of any lesion of the frontal or other convolutions; there was, however, obstruction of the left middle cerebral artery, caused partly by atheromatous thickening of the walls and partly by a fibrinous deposit evidently of a recent date, the result rather of a thrombosis than of an embolism.

A navigator, aged 42, was admitted into the Hôtel Dieu, under the care of M. Troussseau, on 25th March, 1865. The sister of the ward, deeming him to be in extreme danger, began to exhort him to think about his last moments, when she received for an answer, "*N'y a pas de danger.*" Soon afterwards the dresser arrived, and to his first question the patient replied, "*N'y a pas de danger.*" Second question, same answer. It was evident that the man was aphasic, and the discovery that there was paralysis of the right side of the body confirmed the diagnosis. There was marked rigidity of the right upper extremity, the forearm being strongly flexed upon the arm; the tongue was protruded straight, and was freely movable; the right half of the face was paralysed, but the orbicularis palpebrarum was unaffected. Some weeks after admission he seems to have forgotten his old formula, for to every question he answered, "*Tout de même.*" Death occurred after four months' residence in the hospital, when the necropsy gave the following results. Almost the entire left hemisphere was converted into a vast cavity, having the appearance of a true cyst, the walls of which were formed above by a very thin layer of cerebral matter flattened and even softened, and which was adherent to the much-thickened pia mater; in front and behind, all the remaining cerebral substance was yellowish and much softened. The orbital convolutions, the island of Reil, and the first and second frontal convolutions were in a perfectly normal condition; the third frontal convolution was pronounced healthy in that portion (the posterior third or half) which bordered the fis-

* Broca, op. cit., p. 6.

sure of Sylvius and the furrow of Rolando, but it was evidently softened and almost destroyed in its upper part, where it was included in the general softening of the hemisphere, which also involved the corpus striatum and the thalamus opticus; the middle cerebral artery was not obliterated. This examination was made in the presence of Professors Troussseau and Guillot, and whilst showing the care with which this subject is being investigated by the French faculty, it possesses an additional interest from the fact that when the autopsy was completely finished and the brain mutilated by the successive slices that had been made, M. Broea arrived, and declared that the postero-external part of the third frontal convolution was yellow and softened, and that it had been thought healthy because it had been looked for where it did not exist!*

The last case to which I shall allude under this head is recorded by M. Langaudin of Nice, the subject of it being a soldier, who discharged the contents of a pistol through the mouth, the ball traversing the arch of the palate in the median line; the patient lived two months, *and speech was unaffected*, although after death it was found that the anterior lobe of the *left* hemisphere was entirely destroyed by suppuration.†

I conclude the history of the French contributions to the literature of aphasia by a brief allusion to Dr. Ladame's essay on lesions of speech in connection with tumours of the brain. From his researches it would seem that derangement of speech is not common in cerebral tumours, he having observed it only 44 times in 332 observations. According to Dr. Ladame's valuable statistics, tumours of the corpus striatum and of the pons varolii are more frequently attended by loss of speech than those occurring in any other part of the cerebrum. He found that tumours in the *middle* lobes were more frequently accompanied by lesion of speech than those occupying the *anterior* lobes, in the proportion of five to four. These curious results have led Dr. Ladame to dissent from the doctrine which would place the seat of articulate language in the anterior lobes.

(*To be continued.*)

* 'Gazette des Hôpitaux,' Sept. 28, 1865.

† *Ibid.*, April 29, 1865.

